Efficacy Review

Date: August 5, 2010

Efficacy Reviewer: Clayton Myers, Ph.D., Entomologist, RD-IB
myers.clayton@epa.gov
703-347-8874

8-5-10

Risk Manager Rev.: BeWanda Alexander

Product: Bistar® WT Insecticide

EPA Reg. #: 279-3281

A.I.'s: Bifenthrin (23.4%)

Decision #: 423667

DP #'s: 373144
380787

Submission: R350, Amendment, Non-fast track. Efficacy data submitted in support of claims for control of wood-destroying pests for post-construction applications (including reviews of previously submitted MRID's that were submitted as part of a prior 305 submission)

MRIDs: Submitted: 47915101, 47915102
Cited: 42181301, 45941401, 46654601, 46654602

GLP: No

MRID 47915101

Title: Comparative Efficacy Data, Louisiana, 2009: (*Comptotermes formosanus*)

Materials and Methods: Lab studies were conducted using small 'sheds' treated with various termiticide sprays (post-construction) for evaluation of damage over a 2 year period in Louisiana. Sheds were constructed from scratch using southern pine 2x4 boards and ½" plywood. Wood surfaces were sprayed with insecticide solutions (0.6%) to the point of runoff via label directions, up to 2 feet from the shed sill plate as well as the concrete slab floor surface including pipe entry point. Sheds were secured to a monolithic 5' by 3' concrete slab using anchor bolts. The roof and perimeter wall above the treatment zone was left untreated on all sides. Sheds were placed on bare ground and monitored every 60 days. Four of each treatment and control shed were arranged in a randomized design. Four independent in-ground monitors were placed in the ground at each corner of every shed to monitor in-ground termite populations.

Guideline: OCSPP (formerly OPPTS) 810.3600

Study Summary of the Results:

1. Bifenthrin treated sheds were protected from most termite damage for the entire 2 year evaluation period. One shed exhibited mud tubing but only surface feeding, compared to a borate treated group of sheds that had heavy and extensive structural damage. Damage on controls was variable.
2. Termite pressure was comparable between the bifenthrin shed plots and the control plots.
3. In borate and control sheds, termite damage was visible within 60 days of shed placement.

Entomologist's Observations/Discussion:

1. The submitted data is adequate to support claims for control of *Comptotermese* (Formosan) termites only, for pre-treat, post-construction applications up to 2 years.

MRID 47915102

Title: Bistar WT Efficacy Data, Georgia 2009: (*Reticulitermes flavipes*).

Materials and Methods: Same as previous MRID, except that the study was conducted in Georgia and the inspection interval was 90 days instead of 60 days.

Guideline: OCSPP (formerly OPPTS) 810.3600

Study Summary of the Results:

1. After 25 months, there was no visible termite infestation on either control or treated sheds.
2. Termite activity was detected in monitoring stations around the sheds, but for unknown reasons, no sheds became infested through 25 months after placement.

Entomologist's Observations/Discussion:

1. The submitted data is inadequate to support claims for control of termites.

CITED MRID's:

MRID 42181301: This submission summarizes forest service data for soil applications of bifentrhin as a preconstruction soil treatment. Since this use is not present on this label, the data is not applicable.

MRID 45941491: This submission was previously reviewed by Mark Suarez (6 May 2005). The submission was a compilation of studies from Australia, Indonesia, and France. The studies did not test efficacy against termite species that occur in the United States. The submission was partially acceptable, and based upon the review, the product was originally registered conditionally for pests other than termites. The following 2 MRID's were later submitted in response to this condition, in support of another separate amendment.

MRID 46654601: This submission summarizes efficacy trials for protection of wood from attack from *Coptotermes* and *Reticulitermes* utilizing pressure treatment of wood, surface treatment of wood, and glue-line treatments. For long-term efficacy against *Coptotermes* and *Reticulitermes* spp., the following minimum residue levels are required: Pressure treating, final residue of 64 g ai/cubic meter. Surface treatment, final residue of 50 mg ai/square meter. Glueline treatment, final residue of 20 g ai/cubic meter.

MRID 46654602: Studies from above were further explained, with inclusion of raw data. For long-term efficacy against *Coptotermes* and *Reticulitermes* spp., the following minimum residue levels are required: Pressure treating, final residue of 64 g ai/cubic meter. Surface treatment, final residue of 50 mg ai/square meter. Glueline treatment, final residue of 20 g ai/cubic meter.

Overall Review of Label Claims:

1. Preventative claims against termites are supported for 2 years, for post-construction pre-treat applications using a solution of at least 0.6 wt% of bifenthrin and final residues above 50 mg ai/square meter for surface applications. For treatment of wood prior to construction, final wood residue levels (as summarized above) must be achieved via pressure, surface, and/or glue-line treatment, and must meet or exceed the following:
    a. For pressure treatment of wood: Final residue of >/= 64 g bifenthrin/cubic meter.
    b. For surface treatment of wood: Final residue of >/= 50 mg bifenthrin/square meter.
    c. For glueline treatment of wood: Final residue of >/= 20 g bifenthring/square meter.
2. A 2 year duration must be included as part of any and all control claims. Claims are not supported for any duration greater than 2 years.
3. Directions for surface applications to wood (either post-construction pretreatment, or treatment of wood prior to construction) indicating to "apply to the point of runoff" are too ambiguous. The directions for use must instruct a specific minimum efficacious amount of spray mixture to be applied, i.e. "xx gallons spray per square meter, to the point of surface saturation", in accordance with the minimum efficacious does of 50 mg bifenthrin/square meter of wood.
4. An acceptable wood-leaching study remains outstanding as a condition of registration. Submissions were made in 2008, but were then withdrawn.
5. Add the following statements to the directions for use:
    a. "This product is not intended for application to soil; it is not a soil termiticide. Do not use to directly treat soil. Prior to using this product, consult with your state

regulatory agency to see if they require additional qualifications for the person applying this product."

b. "In new construction application for the prevention of termite infestation, structural wood is defined as: only wood needed for the basic building structure as found in the dried-in stage of construction, including wood in direct contact with foundations, interior and exterior wall sill plates, wood or cellulosic sheathing, floor joists, and sub-flooring. Apply when access to wooden structural components is optimized and when no further framing modifications will be made, such as after final framing inspection. Do not use for new construction treatments if the total linear footage of the cellulosic base plates is less than 60% of the total linear footage of all base plates in structure to include exterior and interior walls. In new construction with 60% or more lineal footage of base plates, but without continuous wood on every exterior wall, the treatment must be installed to all other exterior structural construction materials, including brick or block, to a height of 2 feet and extended out onto the slab at a minimum of 2 to a maximum of 8 inches."

c. "In structures where a soil treatment/barrier termiticide has been applied and/or termite bait system installed, this product may be applied as an additional treatment to protect wood from subterranean termites that may have penetrated the chemical gaps occurring within the termiticide-treated soil or have bypassed the bait/monitor systems."

Line by Line Label Efficacy Claims:

For the control and prevention of subterranean termites and other wood-destroying insects in structures such as residential, institutional, public, commercial, and industrial buildings: Acceptable

The application of Bistar® WT to both timber and timber based products as specified in the application instructions will protect treated products from damage from drywood and subterranean termites (including Formosan termites), carpenter ants, ambrosia beetles, powder-post beetles, false powder-post beetles, deathwatch beetles, old-house borers and others. For longer control use the higher rate.: Acceptable, but claim must be qualified as "will protect treated products from damage for up to 2 [two] years from . ." The statement "For longer control use the higher rate" must be deleted, as further data submission would be required to support this claim, with a study of a duration matching any proposed claim.